What is claimed is:

1. A process for detecting optic disc deformation comprising:

obtaining a stereo image pair of an optic disc;

preprocessing the stereo image pair;

registering the stereo image pair;

extracting features from the stereo image pair;

finding course to fine disparities within the stereo image pair; and

obtaining a three dimensional representation of the optic disc.

2. The process for detecting optic disc deformation of claim 1 wherein:

obtaining a stereo image pair of an optic disc comprises obtaining the stereo image pair using a non-convergent imaging system.

3. The process for detecting optic disc deformation of claim 1 wherein:

pre-processing the stereo image pair comprises vertically registering the stereo pair;

dividing each of the images of the stereo pair into windows;

finding disparities by using a combination of the power cepstrum of the sum of corresponding windows of the stereo pair;

and cross-correlating the pixel values for both corresponding windows of the stereo pair.

4. The process for detecting optic disc deformation of claim 3 wherein vertically registering the stereo pair comprises:

finding the coarse to fine disparity between the stereo pair by computing the power cepstrum and cross-correlation for corresponding windows of the stereo pair.

5. The process for detecting optic disc deformation of claim 3 wherein vertically registering the stereo pair comprises:

calculating the frequency spectrum of each of the corresponding windows of the stereo pair

6. The process for detecting optic disc deformation of claim 1 wherein:

obtaining a three dimensional representation of the optic disc comprises obtaining a three dimensional representation of cupping of the optical disc.

7. A process for generating a three dimensional measure of optic disc deformation comprising:

obtaining a stereo image pair of an Optic Nerve Head (ONH);

identifying landmarks in each image of the stereo image pair;

identifying the disparity associated with depth of the stereo image;

aligning the images;

extracting binary features from the stereo images;

registering the stereo images in the vertical axis;

finding coarse to fine disparities of selected regions;

identifying the disparity for the finest (highest resolution) window resulting in thereby creating a sparse disparity matrix;

smoothing the sparse disparity matrix using a cubic B-spline interpolation; and

superimposing the landmarks in the original stereo image pair image in the a 3-D representation of the Optical Nerve Head.

8. The process for generating a three dimensional measure of optic disc deformation of claim 7 wherein:

identifying the disparity associated with depth of the stereo image comprises triangulating corresponding points in the stereo image.

9. The process for generating a three dimensional measure of optic disc deformation of claim 7 wherein:

aligning the images comprises employing image matching strategies.

10. The process for generating a three dimensional measure of optic disc deformation of claim 7 wherein:

finding coarse to fine disparities of selected regions comprises computing a combination of the power cepstrum of the sum of corresponding windows and cross-correlation along a range of pixels.